Claims

[c1]   A method for improving compression of data, comprising:

arranging the data on a mixed format physical layout;

dividing the data on a mixed format physical layout into fixed-sized fields and variable sized fields; and

compressing the data of the variable sized fields and the fixed-sized fields.

[c2]   The method defined in claim 1, further comprising:

storing sizes of the fixed-sized fields in a data dictionary;

storing frequency of the data in the fixed-sized fields and the variable-sized fields in the data dictionary; and

storing information common to all records in the fixed-sized fields and variable sized fields in the data dictionary.

[c3]   The method defined in claim 1, wherein the fixed-sized fields further comprise field values.

[c4]   The method defined in claim 1, wherein the fixed-sized fields further comprise field offsets.

[c5]   The method defined in claim 1, wherein the fixed-sized fields further comprise pointers into the data dictionary.

[c6]   The method for compressing the data in the fixed-sized fields as defined in claim 3, further comprising:

storing a field value of the fixed-sized field in an additional variable-sized field;

coding the value of the fixed-sized field as of a field offset by pointing the field offset to the additional variable-sized field.

[c7]   The method for compressing the data in the variable-sized fields as defined in claim 3, further comprising:

storing frequently occurring long values of the fields in the data dictionary;

coding a value of the variable-sized field as of the field offset by pointing the field offset into the data dictionary, wherein the value of the variable-sized field is a redundant value.

[c8]   The method for compressing the data in the variable-sized fields as defined in claim 5, further comprising:
coding a value of the variable-sized field as of the field offset by encoding the field offset into a record, wherein the value of the variable-sized field is a non-redundant value.

[c9]   The method for compressing the data in the variable-sized fields as defined in claim 3, further comprising:
storing frequently occurring long values of the fields in a second data dictionary, wherein the second data dictionary is larger than the data dictionary;
coding a value of the variable-sized field as of the field value by pointing the field value into the second data dictionary, wherein the field offset is not large enough for the second data dictionary.

[c10]   A method for improving compression of data, comprising: arranging the data on a mixed format layout, wherein the data comprises of a group of correlated fields;
dividing the data on a mixed format physical layout into fixed-sized fields and variable-sized fields; and
compressing the data of the variable-sized fields and the fixed-sized fields.

[c11]   The method defined in claim 10, further comprising:
storing sizes of the fixed-sized fields in a data dictionary; storing frequency of the data in the fixed-sized fields and the variable-sized fields in the data dictionary;
storing information common to all records in the fixed-sized fields and variable sized fields in the data dictionary.

[c12]   The method defined in claim 10, wherein the fixed-sized fields comprise of field values.

[c13]   The method defined in claim 10, wherein the fixed-sized fields comprise of field offsets.

[c14]   The method defined in claim 10, wherein the fixed-sized fields comprise of pointers into the data dictionary.

[c15]   The method for compressing the data as defined in claim 12, further
         comprising:
         storing frequently occurring values for the group of correlated fields in the data
         dictionary; and
         coding a frequently occurring value for the group by pointing the field offset,
         belonging to the group, to the data dictionary.

[c16]   The method for compressing the data as defined in claim 15, further
         comprising:
         coding an infrequently occurring value for the group, wherein the field offset,
         belonging to the group, points to the record in the field.

[c17]   The method for retrieving compressed data, comprising:
         receiving a request for data in a compressed database;
         receiving compressed database on a mixed format physical layout responsive to
         the request, wherein the mixed format physical layout comprises of fixed fields
         and variable fields;
         searching for a value in the fixed fields corresponding to the request for data;
         retrieving the value in the fixed fields corresponding to the requested data.

[c18]   The method defined in claim 17, wherein the retrieving step further comprises:
         retrieving a dictionary entry if the value of the fixed field comprises of a
         dictionary pointer;
         retrieving a value starting from a field offset if the value of the fixed field
         comprises of the field offset; and
         retrieving a same field from that record, if the value of the fixed field comprises
         of a record offset.

[c19]   An apparatus for improving compression of data, comprising:
         means for arranging the data on a mixed format physical layout;
         means for dividing the data on a mixed format physical layout into fixed-sized
         fields and variable sized fields; and
         means for compressing the data of the variable sized fields and the fixed-sized
         fields.

[c20]   An apparatus for retrieving a compressed data, comprising:
         means for receiving a request for decompressing a requested compressed data;
         means for receiving the compressed data on a mixed format physical layout
         responsive to the request, wherein the mixed format physical layout comprises
         of fixed fields and variable fields;
         searching for a value in the fixed fields;
         means for retrieving the value in the fixed fields corresponding to the requested
         compressed data.

[c21]   A compressible computer medium, comprising a plurality of instructions to
         cause a computer to perform the steps of:
         arranging the data on a mixed format physical layout;
         dividing the data on a mixed format physical layout into fixed-sized fields and
         variable sized fields; and
         compressing the data of the variable sized fields and the fixed-sized fields.

[c22]   The compressible computer medium according to claim 21, wherein the
         instructions further cause the computer to perform the steps of:
         storing sizes of the fixed-sized fields in a data dictionary;
         storing frequency of the data in the fixed-sized fields and the variable-sized
         fields in the data dictionary;
         storing information common to all records in the fixed-sized fields and variable
         sized fields in the data dictionary.

[c23]   The compressible computer medium of claim 21, wherein the fixed-sized fields
         comprise of field values.

[c24]   The compressible computer medium of claim 21, wherein the fixed-sized fields
         comprise of field offsets.

[c25]   The compressible computer medium of claim 22, wherein the fixed-sized fields
         comprise of pointers into the data dictionary.

[c26]   The compressible computer medium according to claim 23, wherein the
         instructions further cause the computer to perform the steps of:
         storing a value of the fixed-sized field in an additional variable-sized field;

coding the value of the fix-sized field as of a field offset by pointing the field offset to the additional variable-sized field.

[c27]   The compressible computer medium according to claim 23, wherein the instructions further cause the computer to perform the steps of:
storing frequently occurring long values of the fields in the data dictionary;
coding a value of the variable-sized field as of the field offset by pointing the field offset into the data dictionary, wherein the value of the variable-sized field is a redundant value.

[c28]   The compressible computer medium according to claim 25, wherein the instructions further cause the computer to perform the steps of:
coding a value of the variable-sized field as of the field offset by encoding the field offset into a record, wherein the value of the variable-sized field is a non-redundant value.

[c29]   The compressible computer medium according to claim 23, wherein the instructions further cause the computer to perform the steps of:
storing frequently occurring long values of the fields in a second data dictionary, wherein the second data dictionary is larger than the data dictionary;
coding a value of the variable-sized field as of the field value by pointing the field value into the second data dictionary, wherein the field offset is not large enough for the second data dictionary.